UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,539	10/29/2001	Helmut Weiner	P01,0293	3677

26574 7590 09/13/2005

SCHIFF HARDIN, LLP
PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER	
THOMPSON, JAMES A	
ART UNIT	**PAPER NUMBER**
2624	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/009,539	WEINER, HELMUT	
	Examiner	Art Unit	
	James A. Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2001 and 28 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-92* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-92* is/are rejected.

7)☒ Claim(s) *52,54-62,65,66 and 68* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/29/01, 1/28/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 52 is objected to because of the following informalities: On line 1, "transits" should be changed to "transmits" since this is clearly intended. Appropriate correction is required.

2. Claims 54-62, 65-66 and 68 are objected to because of the following informalities: On line 2 of claim 54, "have" should be changed to "having" since this is clearly intended. Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 87 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 87 recites a "computer program element" without explicitly reciting any form of physical embodiment of said computer program element. Thus, claim 87 does not recite any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof and is thus not patentable.

5. Claim 89 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 89 recites a "computer program element" without explicitly

reciting any form of physical embodiment of said computer program element. Thus, claim 89 does not recite any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof and is thus not patentable.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 87 and 89 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 87 and 89 are both directed to non-statutory subject matter, as discussed above in items 3-5. Thus, the written description provided does not enable the subject matter claimed in claims 87 and 89.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 64 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the invention.

Claim 64 recites the limitation "said standardized compression method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Examiner will interpret claim 64 as being dependent from claim 63, instead of claim 62 as currently recited, since this is clearly an unintentional error and claim 63 is the only preceding claim which contains the language "standardized compression method".

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 39-46, 51, 53-56, 58-61, 70, 72, 75-77, 79-83 and 85-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451).

Regarding claims 39, 75, 85, 87 and 91: Clouthier discloses a system (figure 1(12) and column 2, line 66 to column 3, line 2 of Clouthier) comprising a RIP module (figure 1(16) of Clouthier) that generates a data stream of image raster data page-by-page (column 4, lines 9-14 of Clouthier) from language elements of a graphics language (column 3, lines 29-32 of

Clouthier), said data stream containing gray image areas in a form of dither cells (column 4, lines 2-8 of Clouthier); a two-dimensional network (figure 1(14) and column 3, lines 28-32 of Clouthier) by which said image raster data of each page is divided into tiles, each tile including a plurality of image raster data (column 5, lines 6-12 of Clouthier), a gray scale value is identified for each tile that contains only dither cells (column 5, lines 40-47 of Clouthier), and said tile is marked (column 5, lines 6-12 of Clouthier); and an apparatus (figure 1(22) of Clouthier) for transmitting characteristic data of the marked tiles for further processing of the image raster data (column 4, lines 57-62 and column 5, lines 1-4 of Clouthier), said characteristic data including information about a position of the respective tile (column 6, line 63 to column 7, line 1 of Clouthier) and a respective gray scale value (column 6, lines 12-17 of Clouthier). The tiles correspond to the sections of image data that are classified in one of four possible ways (column 4, lines 2-8 of Clouthier).

Clouthier does not disclose expressly that the gray scale values of said dither cells are determined by model dither cells; and an appertaining model dither cell and said gray scale value thereof are identified for each tile that contains only dither cells.

Spaulding discloses determining the gray scale values of dither cells using model dither cells (figure 11(116A-C) and column 14, lines 32-39 of Spaulding); and identifying an appertaining model dither cell and a gray scale value thereof for each tile of dither cells (column 14, lines 36-45 of Spaulding).

Clouthier and Spaulding are combinable because they are from the same field of endeavor, namely selective processing, control and output of digital color image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the model dither cells to set the dither cells of each corresponding gray scale value for each tile of dithered image data, as taught by Spaulding, wherein said dither cells are the dither cells of the tiles specifically determined and marked by the system taught by Clouthier. The motivation for doing so would have been reduce image artifacts by using already optimized model dither cells stored in LUTs for dithering the image data (column 3, lines 28-35 of Spaulding). Further, it would have been readily recognized by one of ordinary skill in the art at the time of the invention that using already optimized dither cells stored in LUTs decreases the overall processing time required. Therefore, it would have been obvious to combine Spaulding with Clouthier to obtain the invention as specified in claims 39, 75, 85, 87 and 91.

Further regarding claim 39: The method of claim 39 is performed by the system of claim 75.

Further regarding claim 85: The system of claim 75 embodies the computer program product of claim 85 and performs the associated steps performed by said computer program product.

Further regarding claim 87: The system of claim 75 embodies the computer program element of claim 87 and performs the associated steps performed by said computer program element.

Further regarding claim 91: The system of claim 75 embodies the computer-readable medium comprising the computer program of claim 91 and performs the associated steps performed by said computer program.

Regarding claim 40: Clouthier discloses that said dither cells contain picture elements that are arranged one of rectangularly and quadratically (figure 2b(52,54,56) and column 8, lines 60-62 of Clouthier); and that each dither cell with a higher gray scale value at least contains inked picture elements at same positions as a dither cell with a next-lower gray scale value (column 6, lines 33-37 of Clouthier).

Regarding claim 41: Clouthier discloses checking each of said tiles to see whether said tiles contain dither cells of a type of said model dither cell with a lowest gray scale value (column 6, lines 39-46 of Clouthier). Each dither cell that is within a tile is checked to see if the dither cell is of the lowest gray scale value, the lowest gray scale value being checked first (column 6, lines 39-46 of Clouthier).

Regarding claim 42: Clouthier discloses checking tiles tile row by tile row, including investigating a first row first per tile (column 6, lines 36-43 of Clouthier); and, given a lack of coincidence, the appertaining tile is investigated no further (column 6, lines 39-46 of Clouthier). The tiles are all arranged in a logically tiled manner across the entire image space (column 6, lines 36-43 of Clouthier), which would thus include the first tile of the first row (first row first per tile). The tiles would inherently be checked row-by-row since the fast scanning direction would be considered the row of the image data.

Regarding claim 43: Clouthier discloses determining said model dither cell with a highest gray scale value that is contained in all dither cells of a tile (figure 2a(50) and column 7, lines 47-50 of Clouthier) for the tile that contains dither cells of a type of said model dither cell with said

lowest gray scale value (column 7, lines 39-41 of Clouthier); and assigning a gray scale value of said model dither cell to said tile (column 7, lines 45-50 of Clouthier). By increasing the bucket level for a tile of dither cells in the case that a dither cell has a higher gray scale value (column 7, lines 45-50 of Clouthier), the gray scale value of the highest gray scale value dither cell is assigned to said tile. Thus, when there is a model dither cell with said lowest gray scale value and a model dither cell with said highest gray scale value in a single tile, the tile will be assigned the highest gray scale value.

Regarding claim 44: Clouthier discloses that said tiles have a uniform row length (n times the number of bits per pixel cell) (column 6, lines 33-35 of Clouthier).

Regarding claim 45: Clouthier discloses that said uniform row length corresponds to a bit length of a register of a hardware module (figure 2b(52,54,56: depending on supercell size) of Clouthier) with which the present method is implemented (column 7, lines 60-65 of Clouthier). The bit length corresponding to said uniform row length is determined by the particular register used, which depends upon the final bucket value (column 7, lines 60-65 of Clouthier).

Regarding claim 46: Clouthier discloses that said uniform length amounts to one of 8, 16, 32, 64 and 128 bits or an additive combination thereof (figure 2a(48) and column 6, lines 16-21 of Clouthier).

Regarding claim 51: Clouthier discloses combining neighboring tiles having a prescribed gray scale value corresponding to said model dither cell to form a polygon (figure 2a(48) and column 6, line 63 to column 7, line 3 of Clouthier); and transmitting said characteristic data of said

polygon for further processing of said image raster data (figure 2b and column 8, lines 25-35 of Clouthier).

Regarding claim 53: Clouthier discloses that said polygon is one of a square and a rectangle (figure 2b(52,54,56) and column 8, lines 12-17 of Clouthier).

Regarding claim 54: Clouthier discloses that said combining step combines said tiles to form a rectangle (figure 2b(52,54,56) of Clouthier) having a common minimal gray scale value (column 6, lines 63-67 and column 7, lines 39-44 of Clouthier); and wherein said transmitting step transmits said characteristic data of said rectangle (figure 2b and column 8, lines 25-35 of Clouthier).

Regarding claim 55: Clouthier discloses that said rectangle contains a sub-rectangle (column 8, lines 12-17 of Clouthier) whose tiles have a minimum gray scale value that is higher than a gray scale value of the tiles of said rectangle (figure 2a(48) and column 7, lines 45-50 of Clouthier). The individual elements of the rectangle (column 8, lines 12-17 of Clouthier) increase the bucket value of the overall rectangle, thus resulting in the tiles of the sub-rectangle having a minimum gray scale value higher than a gray scale value of said rectangle (figure 2a(48) and column 7, lines 45-50 of Clouthier).

Regarding claim 56: Clouthier discloses producing a list of rectangles (column 8, lines 25-30 of Clouthier); and transmitting said characteristic data of said list (column 8, lines 34-35 of Clouthier).

Regarding claim 58: Clouthier discloses organizing said list such that rectangles with a descending plurality of tiles assume a descending rank in the list (column 8, lines 12-16 of

Clouthier); and transmitting only those rectangles from said list whose plurality of tiles exceeds a predetermined value for further processing (column 8, lines 30-35 of Clouthier). The list of selectable supercells is organized such that the smallest supercell has the smallest rank and the largest supercell has the largest rank (column 8, lines 12-16 of Clouthier). If the data type requires the selection of the largest supercell, then the largest supercell is output (column 8, lines 30-35 of Clouthier).

Regarding claim 59: Clouthier discloses limiting a number of rectangles of said list to a predetermined value (column 8, lines 16-24 of Clouthier). The number of rectangles is limited by setting the rectangle size based on the capabilities of the printer to be used (column 8, lines 16-24 of Clouthier).

Regarding claim 60: Clouthier discloses expanding boundaries of said rectangles by incorporating into an expanded rectangle dither cells of one of a row and of a sequence that adjoin a corresponding rectangle (column 6, lines 50-57 of Clouthier) and that have a same minimum gray scale value as said dither cells of said corresponding rectangle (column 6, lines 63-67 of Clouthier).

Regarding claim 61: Clouthier discloses determining a position of an upper left corner (column 7, lines 12-15 of Clouthier), a height, a width (column 6, lines 33-35 of Clouthier), and a gray scale value for each of said rectangles (column 6, lines 63-67 of Clouthier) with reference to said pages as said characteristic data (column 6, lines 33-39 of Clouthier); and transmitting said characteristic data (figure 2b and column 8, lines 25-35 of Clouthier). A position for each

pixel is determined (column 7, lines 12-15 of Clouthier), thus including the pixel at the upper left corner of the rectangle.

Regarding claim 70: Clouthier discloses generating a data stream of image raster data page-by-page (column 4, lines 9-14 of Clouthier) from language elements of the graphics language (column 3, lines 29-32 of Clouthier) using a RIP module (figure 1(16) of Clouthier).

Regarding claim 72: Clouthier discloses transmitting said raster data as print raster data to a printer (figure 1(28) and column 4, lines 52-56 of Clouthier).

Regarding claim 77: Clouthier discloses a polygon formed by combining neighboring tiles with predetermined gray scale value corresponding to a model dither cell (figure 2a(48) and column 6, line 63 to column 7, line 3 of Clouthier); and wherein said apparatus for transmitting transmits said characteristic data of said polygon for further processing of said image raster data (figure 2b and column 8, lines 25-35 of Clouthier).

Regarding claim 79: Clouthier discloses that said polygon is one of a square and a rectangle (figure 2b(52,54,56) and column 8, lines 12-17 of Clouthier).

Regarding claims 80, 86, 89 and 92: Clouthier discloses a computer-readable medium that contains a computer program on the computer-readable medium which causes a computer to implement the steps of (column 3, lines 12-15 of Clouthier) generating a data stream of image raster data page-by-page (column 4, lines 9-14 of Clouthier) from language elements of a graphics language (column 3, lines 29-32 of Clouthier), said data stream containing gray picture elements in a form of dither cells (column 4, lines 2-8 of Clouthier); determining at least one area that contains only dither cells (column 4, lines 3-5 of

Clouthier); identifying a gray scale value of said at least one area (column 5, lines 40-47 of Clouthier), and marking said at least one area (column 5, lines 6-12 of Clouthier); and transmitting characteristic data of said marked tiles for further processing of the image raster data (column 4, lines 57-62 and column 5, lines 1-4 of Clouthier), said characteristic data containing information about a position of the respective tile (column 6, line 63 to column 7, line 1 of Clouthier) and the respective gray scale value (column 6, lines 12-17 of Clouthier). The tiles correspond to the sections of image data that are classified in one of four possible ways (column 4, lines 2-8 of Clouthier).

Clouthier does not disclose expressly that the gray scale values of said dither cells are defined by model dither cells; and identifying an appertaining model dither cell and said gray scale value of said at least one area.

Spaulding discloses defining the gray scale values of dither cells using model dither cells (figure 11(116A-C) and column 14, lines 32-39 of Spaulding); and identifying an appertaining model dither cell and a gray scale value of at least one area of dither cells (column 14, lines 36-45 of Spaulding).

Clouthier and Spaulding are combinable because they are from the same field of endeavor, namely selective processing, control and output of digital color image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the model dither cells to set the dither cells of each corresponding gray scale value for each tile of dithered image data, as taught by Spaulding, wherein said dither cells are the dither cells of the tiles specifically

defined and marked by the system taught by Clouthier. The motivation for doing so would have been reduce image artifacts by using already optimized model dither cells stored in LUTs for dithering the image data (column 3, lines 28-35 of Spaulding). Further, it would have been readily recognized by one of ordinary skill in the art at the time of the invention that using already optimized dither cells stored in LUTs decreases the overall processing time required. Therefore, it would have been obvious to combine Spaulding with Clouthier to obtain the invention as specified in claims 80, 86, 89 and 92.

Further regarding claim 80: The method of claim 80 is performed by the computer program embodied on the computer-readable medium of claim 92.

Further regarding claim 86: The computer program product of claim 86 is fully embodied on the computer-readable medium of claim 92.

Further regarding claim 89: The computer program element of claim 89 is fully embodied on the computer-readable medium of claim 92.

Regarding claims 76 and 81: Clouthier discloses that said dither cells contain picture elements that are arranged one of rectangularly and quadratically (figure 2b(52,54,56) and column 8, lines 60-62 of Clouthier); and that each dither cell with a higher gray scale value at least contains inked picture elements at same positions as a dither cell with a next-lower gray scale value (column 6, lines 33-37 of Clouthier).

Regarding claim 82: Clouthier discloses that said dither cells of a rectangular region (figure 2b(52,54,56) of Clouthier) have a common minimum gray scale value (column 6, lines 63-67 and column 7, lines 39-44 of Clouthier).

Regarding claim 83: Clouthier discloses producing a list of rectangles (column 8, lines 25-30 of Clouthier); and transmitting said characteristic data of said list (column 8, lines 34-35 of Clouthier).

Regarding claims 88 and 90: Clouthier discloses that said computer program element is present on a computer-readable medium (column 3, lines 12-15 of Clouthier).

12. Claims 47-48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451) and Hiratsuka (US Patent 4,758,897).

Regarding claim 47: Clouthier in view of Spaulding does not disclose expressly comparing using a comparison row that contains only said model dither cells and whose length at least corresponds to said uniform row length of a tile so as to determine whether a tile contains dither cells at least with said lowest gray scale value corresponding to said model dither cell; and implementing said comparing step tile row by tile row.

Hiratsuka discloses comparing using a comparison row (figure 16A-16D and column 2, lines 55-57 of Hiratsuka) that contains only said model dither cells (column 9, lines 35-43 of Hiratsuka) and whose length at least corresponds to said uniform row length of a tile (figure 18; column 9, lines 53-59; and column 10, lines 63-65 of Hiratsuka) so as to determine whether a tile contains dither cells at least with said lowest gray scale value corresponding to said model dither cell (figures 21A-21D and column 11, lines 53-60 of Hiratsuka); and implementing said comparing step tile row by tile row (column 9, line 67 to column 10, line 2 of Hiratsuka).

Clouthier in view of Spaulding is combinable with Hiratsuka because they are from the same field of endeavor, namely control and output of digital image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform tile row by tile row comparisons of model dither cells with the generated halftone data according to the teachings of Hiratsuka. The motivation for doing so would have been to effectively obtain representative gray scale values for predefined regions of the dithered image (column 1, lines 58-65 of Hiratsuka). Therefore, it would have been obvious to combine Hiratsuka with Clouthier in view of Spaulding to obtain the invention as specified in claim 47.

Further regarding claim 48: Hiratsuka discloses that the length of said comparison row amounts to the smallest common multiple of row length of a tile and row length of said dither cell (figures 21A-21D and column 10, lines 63-68 of Hiratsuka). Since row length of the tile and the row length of said dither cell are set to the same size in the comparison step (figures 21A-21D and column 10, lines 63-68 of Hiratsuka), then the length of said comparison row amounts to the smallest common multiple of row length of a tile and row length of said dither cell.

Further regarding claim 50: Hiratsuka discloses using said comparison row with the appertaining model dither cells for each gray scale value (column 9, lines 60-67 of Hiratsuka).

13. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451), Hiratsuka (US Patent 4,758,897), and Wong (US Patent 4,032,978).

Regarding claim 49: Clouthier discloses that the size of the picture element matrix of said dither cell can have one of several different sizes (column 6, lines 53-59 of Clouthier).

Clouthier in view of Spaulding and Hiratsuka does not disclose expressly that said dither cell has one of an 8x8 and 10x10 picture element matrix.

Wong discloses that said dither cell has one of an 8x8 and 10x10 picture element matrix (figure 11(G8,G10) and column 9, lines 37-43 of Wong).

Clouthier in view of Spaulding and Hiratsuka is combinable with Wong because they are from the same field of endeavor, namely control and output of digital image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an 8x8 or a 10x10 picture element matrix for said dither cell, as taught by Wong. The motivation for doing so would have been to provide for either 64 or 100 possible gray scale values, thus increasing the number of available representable tones. Therefore, it would have been obvious to combine Wong with Clouthier in view of Spaulding and Hiratsuka to obtain the invention as specified in claim 49.

14. Claims 52, 57, 62, 71, 78 and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451) and Venkateswar (European Patent Application 0 774 858 A2).

Regarding claims 52, 57, 62, 78 and 84: Clouthier in view of Spaulding does not disclose expressly transmitting said characteristic data in compressed form.

Venkateswar discloses transmitting characteristic data of a tiled image (column 2, lines 56-58 of Venkateswar) in compressed form (column 3, lines 13-19 of Venkateswar).

Clouthier in view of Spaulding is combinable with Venkateswar because they are from the same field of endeavor, namely control and output of digital image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to compress said characteristic data before transmitting, as taught by Venkateswar. The motivation for doing so would have been to reduce the bandwidth required for transmitting the data, and thus the data transmission time (column 2, lines 22-25 of Venkateswar). Therefore, it would have been obvious to combine Venkateswar with Clouthier in view of Spaulding to obtain the invention as specified in claims 52, 57, 62, 78 and 84.

Regarding claim 71: Clouthier in view of Spaulding does not disclose expressly that said RIP module is a POSTSCRIPT converter module.

Venkateswar discloses a RIP module that is a POSTSCRIPT converter module (column 3, lines 20-22 of Venkateswar).

Clouthier in view of Spaulding is combinable with Venkateswar because they are from the same field of endeavor, namely control and output of digital image dither data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a POSTSCRIPT converter module for said RIP module, as taught by Venkateswar. The suggestion for doing so would have been that POSTSCRIPT is one of many different types of useful page description languages available (column 3, lines 20-22 of Venkateswar). Therefore, it would have been obvious to combine Venkateswar with Clouthier in

view of Spaulding to obtain the invention as specified in claim 71.

15. Claims 63, 65 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451) and Endoh (US Patent 4,652,935).

Regarding claims 63 and 65: Clouthier discloses marking said rectangles that contain only dither cells to produce marked rectangles (column 5, lines 5-12 of Clouthier).

Clouthier in view of Spaulding does not disclose expressly removing said raster image data of said marked tiles from said data stream by subtraction; and compressing a remaining data stream according to a standardized compression method and transmitting remaining data stream.

Endoh discloses removing model picture elements from said data stream by subtraction; and compressing a remaining data stream according to a standardized compression method (column 12, lines 37-43 and column 13, lines 8-13 of Endoh) and transmitting remaining data stream (column 13, lines 20-23 and lines 30-35 of Endoh). The run-length encoding is based on the extracted picture elements to be encoded (column 12, lines 37-43 of Endoh). The extracted picture elements are encoded into run-length codes (column 13, lines 8-13 of Endoh). Thus, the model picture elements are removed from the data stream by subtraction and the remaining data stream is compressed and transmitted.

Clouthier in view of Spaulding is combinable with Endoh because they are from the same field of endeavor, namely control and output of digital image dither data. At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to use run-length encoding, as taught by Endoh, for the tiles taught by Clouthier in view of Spaulding. The model (extracted) picture elements would therefore be the marked tiles taught by Clouthier in view of Spaulding. The motivation for doing so would have been to improve the overall transmission speed of the data. Therefore, it would have been obvious to combine Endoh with Clouthier in view of Spaulding to obtain the invention as specified in claims 63 and 65.

Further regarding claim 69: Endoh discloses recompiling a transmitted image raster data using an OR function (column 18, lines 1-32 of Endoh). Decoding occurs based on which one of a plurality of different procedures, which are listed in detail in column 18, lines 1-32 of Endoh, is used for the particular data portion currently being considered by the processor. Further, the mode selection and the status selection are set in controlling which decoding procedure is performed. Thus, an OR function is required in the decoding since one of a plurality of different encoding procedures must be determined.

16. Claims 64 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451), Endoh (US Patent 4,652,935), and Brindle (US Patent 5,526,469).

Regarding claims 64 and 66: Clouthier in view of Spaulding and Endoh does not disclose expressly that said standardized compression method is a FAX G4 compression method.

Brindle discloses specifically using a FAX G4 compression method as said standardized compression method (column 3, lines 38-40 of Brindle).

Clouthier in view of Spaulding and Endoh is combinable with Brindle because they are from the same field of endeavor, namely the control and processing of digital print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a FAX G4 compression method, as taught by Brindle. The suggestion for doing so would have been that the FAX G4 compression method is commonly used (column 3, lines 38-40 of Brindle), and would thus be widely supported. Therefore, it would have been obvious to combine Brindle with Clouthier in view of Spaulding and Endoh to obtain the invention as specified in claims 64 and 66.

17. Claims 67-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451) and Züfle (US Patent 5,940,584).

Regarding claims 67 and 68: Clouthier in view of Spaulding does not disclose expressly transmitting data of said marked tiles according to an SPDS data format.

Züfle discloses transmitting print data according to an SPDS data format (column 3, lines 52-58 of Züfle).

Clouthier in view of Spaulding is combinable with Züfle because they are from the same field of endeavor, namely the control and processing of digital print data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a SPDS data format for print data transmission, as taught by Züfle, for the marked tiles taught by Clouthier in view of Spaulding. The motivation for doing so would have been that SPDS format can be used to reliably send printing data to an archival filing system without needing to be directly printed first (column 3, lines 49-56 of

Züfle). Thus, the marked tiles taught by Clouthier in view of Spaulding could be sent directly to memory from which they could be accessed for use by the printing system for printing each gray scale value in the desired fashion according to said marked tiles. Therefore, it would have been obvious to combine Züfle with Clouthier in view of Spaulding to obtain the invention as specified in claims 67 and 68.

18. Claims 73-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clouthier (US Patent 5,949,964) in view of Spaulding (US Patent 5,822,451), Venkateswar (European Patent Application 0 774 858 A2), and Applicant's admitted prior art.

Regarding claims 73-74: Clouthier in view of Spaulding and Venkateswar does not disclose expressly that said printer is a high-performance printer that has a printing output of at least 400 DIN A4 pages per minute at 600 DPI.

However, on page 2, lines 2-6 of the present specification, Applicant specifically states "The following example makes this clear: A DIN A4 page contains approximately 4.3 megabytes of image raster data given a pixel density of 600 dpi (dots per inch). A high-performance printer has the capability of printing more than 400 DIN A4 pages per minute at 600 dpi. Accordingly, a data rate of more than 28 megabytes/s would have to be governed without compression." Thus, Applicant clearly demonstrates that a high-performance printer that has a printing output of at least 400 DIN A4 pages per minute at 600 DPI is old, well-known and expected in the art. One of ordinary skill in the art at the time of the invention would have been motivated to use said high performance printer since said high performance printer can print at a fast pace, thus completing printing tasks quickly.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Warren F. Brandkamp, US Patent 5,898,821, 27 April 1999.

Crean et al., US Patent 5,745,249, 28 April 1998.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

22 August 2005

THOMAS D LEE
PRIMARY EXAMINER